

**CLAIMS**

1. A method of defining a model of one or more organs or part(s) thereof from multiple images of the organ(s) or part(s) thereof, the method comprising the steps of:  
5 generating a computational mesh of one or more organs or part(s) thereof from multiple images of the organ(s), or part(s) thereof;  
generating a representation of musculature or part(s) thereof associated with the organ(s);  
calculating electric and/or magnetic fields associated with the muscle layers; and  
10 defining a model based on the computational mesh, and the electric and/or magnetic fields.
2. A method as claimed in claim 1 further comprising the steps of:  
obtaining non-invasive measurements of electrical and/or magnetic activity from a  
15 subject; and  
defining the model based at least partly on the measured activity.
3. A method as claimed in claim 2 further comprising the steps of:  
estimating one or more sources of electrical and/or magnetic activity within a  
20 subject; and  
defining the model based at least partly on differences between the estimated sources and the measured activity.
4. A method as claimed in claim 3 wherein the estimated and/or measured activity is  
25 associated with gastric activity.
5. A method as claimed in claim 3 wherein the estimated and/or measured activity is associated with intestinal activity.
- 30 6. A method as claimed in claim 3 wherein the estimated and/or measured activity is associated with cardiac activity.

7. A method of estimating the location of one or more sources of magnetic and/or electric fields in a subject comprising the step of:

5 defining a model of one or more organs or part(s) thereof by the method as claimed in claim 1;  
obtaining one or more measured sources of magnetic and/or electric fields from a subject; and  
estimating the location of one or more sources of magnetic and/or electric fields based at least partly on the model of one or more organs and the measured sources of  
10 magnetic and/or electric fields.

8. A model defining system for defining a model of one or more organs or part(s) thereof from multiple images of the organ(s) or part(s) thereof, the system comprising:

a mesh generation component configured to generate a computational mesh of one  
15 or more organs or part(s) thereof from multiple images of the organ(s) or part(s) thereof and a representation of musculature or part thereof associated with the organ(s);  
an electric/magnetic field component configured to calculate electric and/or magnetic fields associated with the musculature; and  
a model creation component configured to define a model based at least partly on  
20 the computational mesh and the electric and/or magnetic fields.

9. A model defining system as claimed in claim 8 wherein the model creation component is configured to define the model based at least partly on measured activity data obtained from non-invasive measurements of electrical and/or magnetic activity  
25 from a subject.

10. A model defining system as claimed in claim 9 wherein the model creation component is configured to define the model based at least partly on differences between the measured activity data and estimated activity data obtained from estimating one or  
30 more sources of electrical and/or magnetic activity within the subject.

11. A model defining system as claimed in claim 10 wherein the measured activity data and/or estimated activity data is associated with gastric activity.

12. A model defining system as claimed in claim 10 wherein the measured activity  
5 data and/or estimated activity data is associated with intestine activity.

13. A model defining system as claimed in claim 10 wherein the measured activity data and/or estimated activity data is associated with cardiac activity.

10 14. A source location system for estimating the location of one or more sources of magnetic and/or electric fields in a subject, the system comprising:  
a model defining system as claimed in claim 8; and  
a location estimator configured to estimate the location of one or more sources of  
magnetic and/or electric fields based at least partly on the model of one or more organs  
15 and data obtained from one or more measured sources of magnetic and/or electric fields from a subject.